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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/795,968	03/08/2004	Kurt A. Habecker	3600-198-02	8631

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EXAMINER	
MCNELIS, KATHLEEN A	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/795,968	HABECKER ET AL.	
	Examiner	Art Unit	
	Kathleen A. McNelis	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *36-64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *36-64* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/27/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claims Status

Claims 36-64 remain for examination wherein claims 36-38, 42, 48, and 49 are amended.

Acknowledgement of RCE

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CRF 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.115, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/24/2006 has been entered.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 9/27/2006 has been considered by the examiner and all citations initialed.

However, examiner notes that WO 00/67936 (corresponding U.S. Patent No. 6,558,447) is not available in the U.S. as prior art under 35 U.S.C. 102(e) because is was filed prior to 29 November 2000. The publication date of WO 00/67936 is after the effective filing date of the instant application, therefore it is not available as prior art under 35 U.S.C. 102(a) either.

Declaration under 37 C.F.R. §1.132

The declaration under 37 C.F.R. Section 1.132 has been entered into the record, file date 3/24/2006.

Status of Previous Objections/Rejections

The previous rejection of claims 36-43, 48-56 and 58-61 under 35 U.S.C. 102(b) as anticipated by Chang is maintained.

The previous rejection of claims 48 and 49 under 35 U.S.C. 102(b) as anticipated by Chang is withdrawn in view of applicant's amendments to the claims.

The previous rejections of claim 52, 57 and 62-26 under 35 U.S.C. 103(a) as unpatentable over Chang are maintained.

The previous objection to claims 44-47 as being dependent upon a rejected base claim but would be allowable if rewritten in independent form is withdrawn in view of newly applied rejection grounds.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 36-64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 36, applicant has amended the board range of formation voltage from between 10 to 50V to a single formation voltage of 20 V and has amended the broad range of sintering temperature from 1100 to 1300 °C to a single temperature of 1100 °C. The unnumbered table, samples 9 and 10 list formation voltage of 20 V, however the sintering temperature is disclosed as 1150 °C, therefore the combination of 20Vf and 1100 °C is not supported by the specification. Further, the ranges of resulting capacitance values as originally disclosed and claimed (claims 36-41) were supported by the originally disclosed and claimed ranges of formation voltages and sintering temperatures, but are not supported by the single formation voltage of 20V and

sintering temperature 1150°C, for which a narrower range (i.e. between 160,916 and 204,498 CV/g) has been reported in the unnumbered table.

In claim 42, applicant has added the limitation that the DC leakage from about 0.5 nA/CV to less than 5.0 nA/CV. However while this range is supported by the specification for anodes formed at a voltage of less than about 60 V, preferably from 30 – 50 V, examiner does not find support in the specification that this leakage rate would result from a formation voltage of 20 Vf.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 36-43, 50-56 and 58-61 are rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative under 35 U.S.C. 103(a) as unpatentable over Chang (U.S. Pat. No. 5,448,447).

Chang is applied as set forth in the 9/26/2005 office action. Further, Chang discloses that: "For simplicity purposes, reference shall be made to tantalum metal hereafter even though the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal." Therefore Chang discloses the use of niobium in the invention.

Alternatively, while Chang does not explicitly recite examples wherein niobium is used, Chang teaches that niobium and tantalum are recognized in the art for the same purpose, therefore substitution of niobium for tantalum would be obvious to one skilled in the art (see M.P.E.P. 2144.06).

The amended limitations in claim 36 of a sintering temperature of 1100 ° C (changed from range of 1100 to 1300 ° C) and formation voltage of 20 Vf (changed from 10 Vf to 50Vf range) are process limitations. Claim 36 is a product by process claim and as such is not limited by or defined by the process disclosed. The patentability does not depend on the method of production, but rather on the product itself. If the product-by process claim is the same as or

obvious from a product of the prior art, the claim is unpatentable even though the prior product was made using a different process (See M.P.E.P. 2113).

Regarding the amended limitation in claim 42, examiner asserts that these characteristics would be met by a powder produced by the similar composition subjected to similar processing conditions as disclosed by Chang, unless evidence is provided to overcome this assertion.

Examiner has considered the evidence provided in the 1.132 declaration, but does not find it convincing for the reasons discussed in the Response to Arguments section of this office action.

Claims 48, 49, 52, 57 and 62-64 are rejected under 35 U.S.C. 103(a) as unpatentable over Chang as applied to claim 36.

Chang is applied as discussed above regarding claim 36.

With respect to amended claims 48 and 49, Chang discloses that the oxygen content is 700 to 3000 ppm (col. 2 lines 60-68), which overlaps the claimed ranges of less than 1000 ppm (claim 48) and between about 2000 ppm to about 60,000 ppm (claim 49). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form between 700 and 1,000 ppm oxygen or between 2000 and 3000 ppm oxygen, since Chang discloses equal utility for the range of between 700 and 3,000 ppm (see M.P.E.P. § 2144.05).

Claims 36-47 and 49-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/37248 (WO '248)[1] in view of Chang (U.S. Pat. No. 5,448,447).

Claim 36 is a product by process claim and as such is not limited by or defined by the process disclosed. The patentability does not depend on the method of production, but rather on

the product itself. If the product-by process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made using a different process (See M.P.E.P. 2113).

WO '248 discloses a tantalum powder which after sintering at a temperature of between 1100 and 1300 °C and forming at 16 volts has a specific charge of 120,000 to 1800,000 μFV/g at a leakage current of less than 2 nA/ μFV (claim 7).[1] The range of 120,000 to 1800,000 μFV/g is within the claimed ranges of at least 65,000 CV/g[2] (claim 36) and overlaps the claimed ranges of from 65,000 to 150,000 CV/g (claim 37), from 75,000 to 175,000 CV/g (claim 38), from 100,000 to 250,000 CV/g (claim 39), from 125,000 to 250,000 CV/g (claim 40) and from 100,000 to 210000 CV/g (claim 41).

WO '248 does not disclose that the powder is niobium.

Chang discloses a process for making improved tantalum powder into high capacitance, low leakage electrodes (abstract). The purity of the starting material and processing steps for making the electrodes are the same or similar in Chang as in WO '248. Chang discloses that the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal (col. 3 lines 60-68). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use niobium as taught by Chang in the sintered, anodized powder electrodes disclosed by WO '248, since Chang discloses that the chemical and physical properties of tantalum and niobium are known by those skill in the art to be sufficiently similar to permit substitution. Therefore, in the absence of

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[1] Based on corresponding U.S. Patent: Reichert et al. (U.S. Pat. No. 6,193,779). Although not available as prior art under 35 U.S.C. 102(e) due to PCT filing date, WO '248 is available as prior art under 35 U.S.C. 102(a) based on the publication date of 27 August 1998.

[2] Applicant has defined CV/g as microfarad volts per gram in the specficiation.

evidence to the contrary, one skilled in the art would expect the properties of niobium powder processed by the method disclosed in WO '248 to possess the same or similar characteristics as the tantalum powder claimed in WO '248.

With respect to claim 42, WO '248 discloses a range of leakage current of less than 2 nA/μFV (claim 7),[1] which overlaps the claimed range of from about 0.5 nA/CV to 5.0 nA/CV.

With respect to claim 43, the powder disclosed by WO '248 would be flaked since it is produced by crushing and sieving (col. 2 lines 35-44) [1].

With respect to claims 44-48, WO '248 discloses that after washing and during, the BET surfaces are between 1.5 and 10 m^2/g (col. 2 lines 40-44) [1], which overlaps the claimed ranges of at least about 5.5 m^2/g (claim 44), at least about 7.0 m^2/g (claim 45), at least about 10 m^2/g (claim 46), or from 6.0 to 12 m^2/g (claim 47), therefore a prima facie case of obviousness exists (see M.P.E.P. § 2144.05).

With respect to claim 49, WO '248 discloses that the oxygen content ranges from 4,000 to 20,000 ppm, which is within the claimed range of between 2,000 and 60,000 ppm.

With respect to claims 50-52, WO '248 discloses that the nitrogen content is between 100 to 15,000 ppm, preferably at least 500 ppm (col. 3 lines 50-55) [1], which is within the claimed range of at least 100 ppm (claim 51) and overlaps the claimed range of from 100 to 5,000 ppm (claim 52).

With respect to claims 53-54, WO '248 discloses that the powders typically have a flow of 100 to 140 seconds through a 0.1 inch funnel and 15 to 25 seconds through a 0.2 inch funnel (col. 3 lines 25-35) [1], which one of ordinary skill in the art would expect to mean the flow of 50 grams of powder, since WO '248 cites ASTM-B-213. These reported rates through a 0.1 inch

funnel would then correspond to 500 and 357 mg/s respectively, which are within the ranges of at least about 80 mg/s and from 80 to 500 mg/s.

With respect to claims 55, 56 and 61, in the absence of evidence to the contrary the Scott density of the powder would be expected to be about 35 g/in^3 or less or between about 10 and 35 g/in^3 since WO '248 discloses an example (example 5) wherein the Scott powder density of tantalum powder produced by this method was 19.4 g/in^3 and since the atomic mass of niobium is a little more than half that of tantalum.

With respect to claims 57 and 62, WO '248 discloses that the preferred size obtained by sintering is greater than 13 μm (col. 3 lines 15-22) [1], which overlaps the claimed range of from 5 to 80 μm (claims 57 and 62).

With respect to claims 58 and 63, while WO '248 does not recite that the aspect ratio is from about 3 to 300, such would be expected in the absence of evidence to the contrary from a powder of the same or similar composition made by the same or similar method, since when prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present (see M.P.E.P. 2112.01 II).

With respect to claims 59, 60 and 64, WO '248 discloses agglomerated powder (col. 2 lines 27-44) [1].

Response to Arguments

Applicant's arguments filed 3/24/2006 have been fully considered but they are not persuasive.

Applicant's arguments are summarized as follows:

1. While Chang mentions niobium, all of the examples disclosed in Chang are related to tantalum, including the examples specifically referred to and relied upon in the 6/28/2005 office action, however the present invention is drawn to niobium.
2. Applicant's have submitted a declaration under 37 C.F.R. 1.132 showing that niobium samples having a BET of 0.58 to 0.71 m^2/g formed by a voltage of 35 volts at a temperature of 60 °C and sintered at 1400 or 1300 °C for 10 minutes. This shows that the powder disclosed by Chang would not have the properties disclosed by the instant invention when processed according to the limitations in instant claim 36. The change in formation voltage from 35 to 20 volts would not significantly affect the capacitance.

Examiner's responses to these arguments are as follows:

1. Chang recites: "For simplicity purposes, reference shall be made to tantalum metal hereafter even though the chemical and physical properties of tantalum and niobium are known by those skilled in the art to be sufficiently similar to permit substitution of either metal." Chang therefore discloses the use of niobium.
2. The 1.132 declaration provides results for testing a niobium powder of BET around 0.58 m^2/g. The data was collected from sintering at 1,300 °C and is extrapolated to represent an estimated capacitance for a sintering temperature of 1,100 °C. The 1.132 declaration does not address the difference between the applied formation voltage (35 V), and the limitation for applied voltage as amended in instant claim 36 (i.e. 20 V). Although this difference is characterized as not significant in the arguments, arguments do not take the place of evidence.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kathleen A. McNelis whose telephone number is 571 272 3554. The examiner can normally be reached on M-F 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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10/27/2006

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